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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/660,043	09/10/2003	Henry Esmond Butterworth	GB920020093US1	5777

7590 02/01/2006
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EXAMINER

DOAN, DUC T

ART UNIT PAPER NUMBER

2188

DATE MAILED: 02/01/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

DETAILED ACTION

Status of Claims

Claims 1-22 are in the application.

Claims 1-22 are rejected.

Claim Objections

Claims 2,9,14,19 are objected to because of the following informalities:

As per claims 2,9,14,19 the recitation “a grain of data” does not have support in the disclosure.

Appropriate correction is required.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

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(a) the invention was known or used by other's in this country or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

Claims 1-5,8-22 are rejected under 35 U.S.C. 102 (e) as being anticipated by Ohran (US 5835953)

As for claim 1, Ohran describes a storage apparatus operable as primary in a remote copy pair comprising: a remote copy component operable to establish a remote copy relationship between said primary and a secondary (Fig 3, circuits to provide and maintaining snapshots in the primary; Ohran's column 13 lines 30-33); a copy component operable at said primary to create a copy for download onto a portable physical storage medium for offline transport to said secondary for upload (Backup is made in conventional way, for example copying to a tape media for current data copy at time T0; Ohran's column 10 lines 30-42) ; a synchronization component for synchronizing data at said secondary with data at said primary using an online link in response to a request for synchronization from said secondary (circuits in the primary system to response to backup system request to initiate contact with a primary system; Ohran's column 12 lines 35-50); a metadata component operable to store a dirty state indicator of a portion of a storage space at said primary after establishment of said remote copy relationship at said primary (circuits to track storage locations that have new data written between time T0 and T1; Ohran's column 11 lines 20-36); and said metadata component being operable to limit synchronization at said secondary to said portion of storage having said dirty state indicator at said primary

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(Ohran's column 12 lines 5-10 clearly describes only backing up the changing data blocks, and by minimizing the amount of updating data, backup time is drastically reduced).

As for claim 2, Ohran's describes wherein said metadata component comprises a bitmap and said portion of said storage space is a grain of data (backup map comprises Boolean entries indicating storage locations of new data; column 13 lines 15-25).

As for claim 3, the claim recites further operable as a secondary in a remote copy pair and comprising: a loading component for uploading said copy from said portable physical storage medium (Backup is made in conventional way, for example copying to a tape media for current data copy at time T0; Ohran's column 10 lines 30-42); a suppressing component for suppressing synchronization from a metadata component in said secondary (Ohran's column 12 lines 45-47, the backup system of the secondary contacts primary system to receive only that changes that have occurred); and a requester component for requesting synchronization of data at said secondary with data at said primary using an online link (Ohran's column 14 lines 45-53).

As for claim 4, Ohran describes wherein said online link comprises a storage area network (Ohran's describes changing data blocks are transported by LAN, WAN; column 10 lines 1-7).

As for claim 5, the claim recites wherein said copy component comprises a Flash Copy component (Ohran's clearly describes the point in time copy including keeping a snapshot of storage locations that have new data; column 10 lines 55-65).

Claims 8,13,18 rejected based on the same rationale as in the rejection of claim 1.

Claims 9,14,19 rejected based on the same rationale as in the rejection of claim 2.

Claims 10,15,20 rejected based on the same rationale as in the rejection of claim 3.

Claims 11,16,21 rejected based on the same rationale as in the rejection of claim 4.

Claims 12,17,22 rejected based on the same rationale as in the rejection of claim 5.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 6-7 rejected under 35 U.S.C. 103(a) as being unpatentable over Ohran (US 5835953) and further in view of Kamvysselis (US 6941429).

As for claim 6, the claim recites a storage adapter card comprising a storage apparatus as claimed in claim 1. Ohran does not specifically describe circuits in the backup system residing in a card. However, Kamvysselis describes an intelligent adapter card capable of providing data copying and backing up functions (Fig 2: #117; column 4 lines 3-38). It would have been obvious to one of ordinary skill in the art at the time of invention to include the adapter card structures and functions as suggested by Kamvysselis in Ohran's system such that the backup functions are provided by the adapter cards, thereby the conventional data mover computers are eliminated and advantageously reducing foot-print in a data center (Kamvysselis's column 2 lines 17-30).

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As for claim 7, the claim recites a storage virtualization engine comprising a storage adapter card as claimed in claim 6. It has been known in the art that storage virtualization has been employed in storage devices to provide the flexibility of sharing storage and migrating data particularly for sharing data among multiple hosts.

Conclusion

When responding to the office action, Applicant is advised to provide the examiner with the line numbers and page numbers in the application and/or references cited to assist examiner to locate the appropriate paragraphs.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Duc T. Doan whose telephone number is 571-272-4171. The examiner can normally be reached on M-F 8:00 AM 05:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mano Padmanabhan can be reached on 571-272-4210. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Kevin L. Ellis
Primary Examiner

